

I CLAIM:

Sub A1
1. A sprinkler [having] comprising:
a rotatable nozzle housing having a water passage formed therein;
an output shaft mechanically connected to said rotatable nozzle housing for rotating said
nozzle housing;[,]

5 a manually adjustable rotatable sleeve having an inner surface and a plurality of
circumferentially spaced orifices;[,]
said rotatable sleeve [is] being slidably installed around the
nozzle housing and being in rotational relationship therewith and thereto; and

10 [sealing means surrounding the discharge end of a water passage formed in said nozzle
housing; said sealing means including] a seal member surrounding the discharge end of the water
passage and dimensioned to continuously bear against said inner surface of said rotatable sleeve
to provide a sealed connection to the pressurized water passage of the nozzle housing,

wherein said rotatable sleeve [is] can be selectively positioned to align one of said
plurality of orifices with said discharge end of the water passage for distributing water outwardly
from said sprinkler[, and means for retaining said nozzle selection sleeve in place].

2. A sprinkler as claimed in claim 1 including nozzle means in said manually
adjustable rotatable sleeve.

3. A sprinkler as claimed in claim 1 wherein each orifice of said plurality of orifices
are configured to provide a different desired flow characteristic.

Sub A2
4. A sprinkler as claimed in claim [3] 1, wherein said sealing [means] member is an
"O" ring.

5. A sprinkler as claimed in claim [3] 1, wherein
said rotatable nozzle housing is cylindrical and includes an outer surface, and
said [separate] rotatable sleeve is dimensioned so that the outer diameter thereof is
substantially equal to the outer diameter of said outer surface of said rotatable nozzle housing.

6. A sprinkler as claimed in claim [3] 1, wherein a portion of said [separate] rotatable sleeve is blank, and wherein [so that] said [separate] rotatable sleeve [is] can be selectively positioned so that said blank portion overlies said discharge end of said water passage whereby said sprinkler is capable of being turned off without turning off the water supply.

7. A sprinkler as claimed in claim 6, wherein said rotatable nozzle housing includes a reduced diameter surface, said inner [diameter] surface of said rotatable sleeve being in slidable relationship with said reduced diameter surface of said rotatable nozzle housing.

8. A sprinkler as claimed in [claims] claim 7, further comprising [including] a riser assembly operatively connected to said rotatable nozzle housing, said riser assembly including a cylindrical member having an outer diameter, the outer diameter of said [separate] rotatable sleeve being substantially equal to the diameter of said outer diameter of said cylindrical member.

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Sub A3
9. A sprinkler as set forth in claim 3 wherein said rotatable nozzle housing includes indicia on the top indicating the location of each orifice of said plurality of orifices and/or its flow characteristic.

10. A sprinkler as claimed in claim [3] 1, wherein said [separate] rotatable sleeve is slidably installed from the top of said sprinkler.

11. A sprinkler as claimed in claim 1, wherein said nozzle housing further includes an outer surface, and
gripping means formed on said outer surface to hold said nozzle housing from rotating when said sleeve is rotated.

Sub A4
12. A sprinkler [having] comprising:
a rotatable nozzle housing having a water passage formed therein and a central axis about which said rotatable nozzle housing rotates;
a [relatively flat] nozzle plate having [a front side, a back side, a top edge, a bottom edge

5 and opposing side edges;] at least one orifice disposed in said nozzle plate [aligning] to be aligned with [a] the water passage formed in said rotatable nozzle housing for discharging water from the side of said rotatable nozzle housing at a given characteristic,

10 said nozzle plate slidably fitting into a complementary groove formed into said water passage in said rotatable nozzle housing [and disposed generally parallel to said central axis, said front side having] so that a planar surface of said nozzle plate can be sealed to the water passage by [facing the discharge end of said water passage, sealing means surrounding said discharge end of said water passage formed in said nozzle housing; said sealing means including] a seal member surrounding [the discharge end of] the water passage and dimensioned to continuously bear against said planar surface to provide a sealed connection to the pressurized
15 water passage of the nozzle housing, [means on the top edge of]

wherein said nozzle plate is accessible from the top of said rotatable nozzle housing [wherein said nozzle plate is] so as to be removable while said sprinkler is operational for insertion of [other] another nozzle plate [plates with different orifices] having at least one orifice and having different flow characteristics from those of the removed nozzle plate.

13. A sprinkler as claimed in claim 12, wherein said seal member is an "O" ring.

14. A sprinkler as claimed in claim 12, including a tapered recess formed at one end of said groove and a mating tapered portion formed on said [bottom edge and said back side] nozzle plate to urge said nozzle plate against said seal member.

15. A sprinkler as claimed in claim 12, including a riser operatively connected to said rotatable nozzle housing, said riser and said nozzle housing being cylindrically shaped and the outer diameter of said riser and the outer diameter of said nozzle housing being substantially equal.

16. A water sprinkler [having] comprising:
a riser assembly₁[,]
a drive shaft extending from the top of said riser assembly₁[,]
a nozzle housing assembly[, said nozzle housing assembly] having

5 a housing connected to said drive shaft for rotation therewith, [said nozzle
housing assembly having]
a cylindrical outer surface, and
a flow passage formed therein which has an exit at said cylindrical outer surface;

and

10 a cylindrical nozzle selection sleeve [being] mounted over the outer surface of said
housing to rotate therewith and being manually [rotated] rotatable relative to said housing, said
nozzle selection sleeve having a sleeve wall with a multiplicity of individual nozzles spaced
therearound, [said housing having a flow passage therein with an exit at said cylindrical outer
surface,] said individual nozzles being positioned on said sleeve wall so that each nozzle
15 becomes aligned with said flow passage exit as the nozzle selection sleeve is rotated.

17. A water sprinkler as claimed in claim 16, wherein each of said individual nozzles
includes a sharp edged orifice formed therein in the process of molding the nozzle selection
sleeve.

18. A water sprinkler as claimed in claim 16, further including a sealing [means]
member surrounding said flow passage exit to provide a sealed connection to the pressurized
water passage of the nozzle housing.

19. A water sprinkler as claimed in claim 18, wherein said sealing [means] member
includes an "O" ring.

20. A sprinkler comprising:
a riser assembly;
a rotatable nozzle housing having a flow passage formed therein for discharging water
therefrom;

5 a drive shaft extending from the riser assembly and connected to the nozzle housing for
rotating the nozzle housing relative to the riser assembly; and
at least one selectable nozzle arrangement for aligning one of a plurality of nozzle orifices
with the flow passage to distribute water from the sprinkler according to desired flow

characteristics, wherein the plurality of nozzle orifices are each configured mutually differently to provide different flow characteristics, and wherein a selected one of the plurality of nozzle orifices to be aligned with the flow passage can be changed while the sprinkler is operational.

21. The sprinkler according to claim 20, wherein the at least one selectable nozzle arrangement includes at least one nozzle plate each having at least one orifice disposed therein.

22. The sprinkler according to claim 21, wherein the nozzle housing has a groove formed therein, whereby a nozzle plate can be slidably fitted into the groove and accessible from the top of the nozzle housing so as to be mountable in the nozzle housing while the sprinkler is operational and similarly removable therefrom for insertion of another nozzle plate having another of the plurality of differently configured nozzle orifices.

23. The sprinkler according to claim 21, wherein each nozzle plate is mountable in the nozzle housing so as to intersect the flow passage to align the selected one of the differently configured nozzle orifices with the flow passage, whereby a pressurized flow of water flowing through the flow passage is forced through the selected nozzle orifice to achieve the desired flow characteristics.

24. The sprinkler according to claim 21, wherein the at least one nozzle plate includes a nozzle plate having an insertable nozzle inserted into the plate.

25. The sprinkler according to claim 20, wherein the at least one selectable nozzle arrangement includes a nozzle sleeve mountable around and dismountable from the rotatable nozzle housing, the nozzle sleeve being rotatable relative to the rotatable nozzle housing and having the plurality of nozzle orifices formed therein.

26. The sprinkler according to claim 20, wherein the selectable nozzle arrangement is removable from the sprinkler housing while the sprinkler is operational so as to be exchangeable.

27. A sprinkler comprising:

a riser assembly;

a rotatable nozzle housing having a flow passage formed therein for discharging water therefrom;

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a drive shaft extending from the riser assembly and connected to the nozzle housing for rotating the nozzle housing relative to the riser assembly; and

a nozzle plate including a selected orifice therein to be aligned with the flow passage for discharging water from the rotatable nozzle housing according to a desired flow characteristic.

28. The sprinkler according to claim 27, wherein the nozzle plate is fitted into a complementary opening formed in the rotatable nozzle housing to intersect the flow passage to force a pressurized water flow through the selected orifice to provide a desired precipitation rate for a desired arc of coverage.

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